



Federico Passeri

PERSONAL INFORMATION

Name: Federico Passeri
Email: federico.passeri@polito.it
Date of birth: 8th July, 1990
Mobile Phone: +393398432145
Citizenship: Italian

EDUCATION and TRAINING

- **Ph.D. Student-Civil and Environmental Engineering** at the Politecnico di Torino (Italy), starting from November 2016. Civil and Environmental Ph.D. programme supplied by the Politecnico di Torino (31st cycle) and the Department of Structural, Building and Geotechnical Engineering.

Main topic:

“Shear wave velocities geostatistical model for non-invasive tests”

Supervisor: Prof. Sebastiano Foti (Politecnico di Torino) and Prof. Adrian Rodriguez-Marek (Virginia Tech)

- **Master Degree in Civil-Geotechnical Engineering** accomplished at the Politecnico di Torino on July 2015 **with honors**. Master of Science in Civil Engineering with particular attention paid to the Geotechnical aspects. The differences with other classes were necessary in order to specialize and develop specific skills in this complex field. In particular, additional courses were provided in Rock Mechanics, Numerical Methods in Geotechnical Engineering, Slope stability, Tunneling and Soil Dynamics and Earthquake Geotechnical Engineering.

Master thesis title:

“Numerical Simulations of Non-Linear Seismic Ground Response Analyses within the PRENOLIN project”

Supervisors: Prof. Sebastiano Foti (Politecnico di Torino)
Dr. Stavroula Kontoe (Imperial College of London, U.K.)

- **Visiting student at the Imperial College of London**, from September to December 2014, Department of Civil Engineering, Skempton Building.

The initial and fundamental part of the work was conducted in London, specifically at the Civil Engineering Department (Skempton Building, South Kensington Campus) of the Imperial College of London. The reason of this choice was due to the enormous capabilities of the ICFEP finite element software, which is uniquely available at the ICL.

Supervisors: Dr. Stavroula Kontoe (Imperial College of London, U.K.)
Dr. Bo Han (Imperial College of London, U.K.)

- **Bachelor’s Degree** in Civil and Environmental Engineering, Università Politecnica delle Marche (Italy), December 2012 **with honors**.

Supervisor: Prof. Erio Pasqualini (Università Politecnica delle Marche)

RESEARCH AND WORK EXPERIENCES

- **Ph.D. student**, Politecnico di Torino (11/1/2015-present).
- **Central Italy Earthquake Emergency-GEER reconnaissance**, (from 9/1/2016 to 12/31/2017).
Supported by Politecnico di Torino and coordinated by Prof. Sebastiano Foti. Seismic microzonation of the Accumoli area by adopting seismic in situ tests (invasive and noninvasive) and numerical advanced simulations.
Structural and geotechnical advanced reconnaissance operated in conjunction with the GEER (Geotechnical Extreme Events Reconnaissance) association after the second mainshock on October 30th.
- **Analysis of liquefaction phenomena and in situ blast test in Mirabello (FE)**, (from 2/1/2016 to 4/30/2018).
The Politecnico di Torino and the Università di Torino were designated to conduct a complete geophysical survey at Mirabello (Italy) by the Italian National Institution for Geophysics and Volcanology. The main aim was in evaluating mechanical and hydraulic variations before and after the blast test by processing results in-situ obtained (MASW tests, ERT tests, Down-Hole tests). The test was conducted under the supervision of Dr. Sara Amoroso (INGV, Italy) and Prof. Kyle Rollins (Brigham Young Univ., Provo, UT), while the geophysical team was supervised by Prof. Sebastiano Foti (Politecnico di Torino, Italy) and Prof. Cesare Comina (Università di Torino, Italy).
- **International Research Program PRENOLIN**, Imperial College of London and Politecnico di Torino (from 9/1/2014 to 9/30/2015).
One of the objectives of the PRENOLIN project was the assessment of uncertainties associated with non-linear simulation of 1D site effects. An international benchmark was started to test several numerical codes, including various non-linear soil constitutive models, to compute the non-linear seismic site response. PRENOLIN is part of two larger projects: SINAPS@, funded by the ANR (French National Research Agency) and SIGMA, funded by a consortium of nuclear operators (EDF, CEA, AREVA, ENL).
I managed the relationships with the Politecnico di Torino. I began my professional experience thanks to this project, which allowed me to collaborate over these two important universities. My responsibilities regarded the nonlinear seismic response numerical analyses carried out with ICFEP software and the control of the deadline requests. In particular, at each step many numerical simulations were demanded, all with an evident nonlinear behavior.
- **Academic Internship**, Province of Turin (3/5/2014-6/15/2014).
- **Academic students assistant** during a fixed-term contract (3/3/2014-6/30/2014).
I was chosen for this part-time job at the Politecnico di Torino, aiming at helping MSc students during the course of Rock Mechanics. I have supported Prof. Claudio Scavia and Prof. Monica Barbero during their lectures and assisted them in the revision of the students' final assignments.
- **Academic Internship**, Polytechnic University of Marche-Department of Science and Materials Engineering, Environment and City Planning (5/2/2012-6/30/2012).

ADDITIONAL EDUCATION

- **XXIV CGT Conference**, Torino (Italy) (25th-26th February, 2016), *Design, construction & controls of soil improvement systems*.
- **ISC'5 International Conference**, Gold Coast (AU) (5th-9th September, 2016). Registered delegate and Speaker of the Geophysical Session.
- **National Ph.D. Summer School**, Bologna (Italy) (20th-21st September, 2016), *Experimental models and numerical simulations of the idro-mechanical behavior of natural interfaces*.
- **CNRIG 2016**, Bologna (Italy) (22th-24th September, 2016)
- **National Ph.D. Summer School**, Potenza (Italy) (3rd-5th July, 2017), *Geotechnical Earthquake Engineering and Soil-Structure interaction*
- **IARG 2017**, Matera (Italy) (5th-7th July, 2017)

ASSOCIATIONS

- **GEER (Geotechnical Extreme Events Reconnaissance)** – Regular member
- **Ordine degli Ingegneri della Provincia di Torino** – Sezione A – Settore Civile e Ambientale
- **EERI (Earthquake Engineering Research Institute)**

- **Soils Dynamics and Geotechnical Earthquake Engineering**, Politecnico di Torino-Prof. Sebastiano Foti.
- **Seismic Risk Assessment**, Politecnico di Torino-Prof. Sebastiano Foti.

PUBLICATIONS

- *“Reliability of soil porosity estimation from seismic wave velocities”* – S.Foti and F.Passeri (2016), International Conference on Geotechnical and Geophysical Site Characterisation, Gold Coast (Australia), September 2016. pp. 425-430
- *“The first Italian blast-induced liquefaction test (Mirabello, Emilia-Romagna, Italy): description of the experiment and preliminary results”* – Amoroso et al. (2017), Annals of Geophysics
- *“Influenza delle incertezze nella valutazione dei profili di Vs sulle analisi di RSL: il caso studio di Fonte del Campo (RI)”* – F.Passeri and S.Foti (2017), IARG 2017
- *“Confronto dei parametri geotecnici e geofisici pre e post blast test presso il sito sperimentale di Mirabello (FE)”* – Amoroso et al. (2017), IARG 2017
- *“Reliability and Accuracy of Seismic Tests in Geotechnical Site Characterization”* – S.Foti and F.Passeri (2018), Geotechnics for Natural and Engineered Sustainable Technologies. Springer, Singapore, 2018. p. 187-206.
- *“PRENOLIN: International Benchmark on 1D Nonlinear Site-Response Analysis—Validation Phase Exercise”* – Régnier et al. (2018), Bulletin of the Seismological Society of America.

ADDITIONAL INFORMATION

AWARDS

International scholarship offered by Autostrade per l'Italia S.p.a. for the best Engineering graduand student Politecnico di Torino.

COMPETENCES AND AIMS

My fundamental experience is in relation to Geotechnical engineering, particularly Earthquake Engineering. During the course of my academic career, I focused my attention on non-linear seismic response analyses and numerical simulations. However, the Civil Engineering course gave me the possibility to work within diverse fields, such as the Structural, Hydraulic and Transport Engineering. I am conducting an in-depth examination on the influence of geotechnical parameter variability and the uncertainties propagation in the numerical simulations, with respect to the Ph.D. In addition, my other fields of study concern the scour effects for bridges, the seismic risk evaluation and the rock falling phenomenon. Moreover, I am involved in field characterization and in situ tests, especially the surface wave methods. My team experiences have always been positive, both in academic and social environments (Scout Movement and water polo teams). I have always concentrated myself on the group spirit, collecting victories and defeats with the partners. The crucial point in my life came with my London experience. It was the moment in which I discovered an unimaginable enterprising spirit hidden in myself. The initial shock disappeared and I found out an unforeseen capacity in enjoying that extraordinary experience.

I possess a strong skill set with Microsoft operating systems and I have often worked with:

- Finite element software for Structural Engineering, such as SAP2000 and Lusas Modeller
- Geotechnical Modelling Software like Rocsupport, Dips, Rocfall, Roclab, Phase 2, PLAXIS 2D and FLAC 2D
- Software for the Earthquake Geotechnical Engineering, ICFEP ("Imperial College Finite Element Program"), Seismosignal, DEEPSOIL, EERA, STRATA, CRISIS 2007, CRISIS 2015, Open SHA
- CAD Software
- MATLAB environment

I possess a great level of English language, passing the IELTS exam with an overall 6 mark in April, 2014. However, my London and US experience helped me in increasing my language capacities (in Listening, Reading, Writing and Speaking).